

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION I
1 CONGRESS STREET - SUITE 1100
BOSTON, MASSACHUSETTS 02114-2023

FACT SHEET

DRAFT NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
PERMIT TO DISCHARGE TO WATERS OF THE UNITED STATES.

NPDES PERMIT NO.: MA0004936

NAME AND ADDRESS OF APPLICANT:

**Veryfine Products, Inc.
20 Harvard Road
Littleton, MA 01460**

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

**Veryfine Products, Inc.
20 Harvard Road
Littleton, MA 01460**

RECEIVING WATER: **Reedy Meadow Brook**
(USGS Hydrologic Code #01070002 - Merrimack River Basin)

CLASSIFICATION: **Class B** - warm water fishery

I. Proposed Action, Type of Facility and Discharge Location

Veryfine Products (“Veryfine”) is a producer of fruit juice and other beverages. The company has applied to the U.S. Environmental Protection Agency for the reissuance of its NPDES permit to discharge treated process wastewater, reverse osmosis reject water, non-contact cooling water, contact cooling water and cooling tower blowdown from Outfall 001 to Reedy Meadow Brook. There is also an internal outfall, 002, which is comprised of storm water, and which combines with the Outfall 001 flows prior to discharge to Reedy Meadow Brook. The facility location is shown on Figure 1 and the discharge location in Figure 2.

II. Description of Treatment System and Discharges

Veryfine Products is headquartered in Littleton, MA and it undertakes all of its manufacturing at its Littleton, MA facility. In 2004, Veryfine was bought by Kraft Foods Global, Inc., and is currently a wholly owned subsidiary.

This facility has historically processed fresh apples and fresh and frozen cranberries into juice. Although the plant currently uses fresh cranberries for some products, the use of raw apples has been discontinued as any apple products use apple concentrate in production. During the last few years, this plant has increased its production of flavored water products, which has led to a decline of fruit juice production. As of March of 2005, this facility's product mix is roughly 30% juice products and 70% flavored water products. The facility has noted that this product mix is evaluated periodically and may change during the life of this permit. As required by Part I.A.5 of the permit, the permittee shall notify EPA and DEP when it makes a significant change to its product mix or when it undergoes a change or addition to its treatment system that may alter the quality of the effluent. This will allow the agencies to determine whether or not such changes would result in changes to effluent quality which would necessitate a permit modification. Process flow diagrams for the facility's production lines are shown in Figures 3, 4, 5 and 6.

The facility employs several bottling lines for its products. The fruit juice products typically undergo a pasteurization step which heats the products up to 195°F. There are also bottle washing operations and non-contact cooling waters from heat exchangers that are routed to the treatment plant. As proportionately less fruit juice is being produced at the plant, there has been a reduction in heated waters from the bottling lines and a reduction in the BOD strength of these waters, which is typically high in the fruit juice wastewater. The floor drains in the bottling and canning operations collect washdown water and any spills and send them to the influent of the treatment plant. The cans of juices that undergo pasteurization are cooled with contact cooling water which is returned to rooftop cooling towers for heat removal. Cooling tower blowdown and some excess contact cooling water is periodically discharged to the treatment plant. Each bottling line has a semi-closed loop cooling water recycle system, consisting of recirculating pumps and chiller systems located on the roofs of each major process building.

In 1993, Veryfine completed construction of a new biological treatment system for its process wastewater and the permit issued in 1993 included extensive monitoring due to water quality concerns and also to get sufficient operating data for this plant, which at the time represented relatively new treatment technology. The plant treats high strength (high BOD) wastewater, low strength wastewater and non-contact cooling water (NCCW). See Figure 7 for a schematic of this treatment system.

This treatment plant employs pretreatment with screening and grit removal. The high strength flow is treated in an upflow anaerobic sludge blanket (UASB) reactor. An activated sludge system is then used to treat the UASB effluent along with the low strength water and NCCW. These flows are then sent through a reactor clarifier with alum to remove phosphorus. This is followed by automatic backwash variety sand filters for removal of suspended solids. This is

followed by post aeration and ultraviolet disinfection. Flow is measured by a Parshall flume after the UV unit and this is where the effluent parameters are monitored.

In order to accommodate a process change, the permittee will be treating municipal water with a reverse osmosis system for its flavored water products. This new RO process will result in a RO reject (ROR) water, which is being authorized as a portion of the effluent for this permit. EPA Region 1 issued a general NPDES permit (GP) for ROR water on December 17, 2002, but Veryfine's discharge could not be authorized by this GP because the GP requires at least a 10:1 dilution available to the final effluent, whereas in this case the dilution factor is close to 1:1.

This ROR water is expected to contribute about 0.14 MGD to the final effluent. The RO system is shown in Figure 8. The permittee is proposing to introduce the ROR water to the treatment plant at some point after the main clarifier and before the post aeration equipment. The permittee has evaluated the characteristics of the ROR water and it has been found that the Total Dissolved Solids (TDS) will be in the vicinity of 1700 mg/l. The permittee's pilot testing also showed higher levels of some metals and other parameters in the ROR water as compared to the influent to the RO system, which will be municipal water from the Town of Littleton. The permittee expects the intake water to the RO system to be concentrated about 6 fold when it is discharged as ROR water, which would explain the higher levels of some parameters in the ROR water. Although the addition of this flow to the final effluent flow does not necessitate an increase in the monthly average or daily maximum permitted flow, we believe that quarterly toxicity testing needs to be maintained in this permit to assure that constituents of this flow do not present a toxicity problem. Since the ROR water may contain some parameters not previously detected in the facility's effluent, we are requiring that a priority pollutant scan of the effluent be conducted quarterly for the first calendar year of the reissued permit term. Sampling for this 24 hour composite scan shall be conducted during a period of RO system use and at least 2 of the 4 quarterly samples shall be conducted during a period of RO system cleaning, which is described below.

This RO system will be backflushed daily. In addition, the RO system will need to be periodically cleaned. This will be a scheduled activity which the permittee anticipates will initially be conducted quarterly, then followed by twice per year. Cleaning compounds to be used will be a mixture of triacetic acid and phosphoric acid. These compounds will be diluted to about 50 to 1 with water, then adjusted to a pH of 3 and followed by a rinse totaling 10,000 gallons. This step would be followed by a caustic cleaning using a mixture of amines, adjustment to a pH of 10-11 with about 700 gallons circulated through the system, followed by a filtered water rinse of an estimated 20,000 gallons.

Veryfine has an internal storm water outfall (#002) which is comprised of storm water from building roofs and parking lot drains. These flows are directed to a retention basin, prior to being combined with Outfall 001 flows for eventual discharge to Reedy Meadow Brook. There are oil/water separators for each storm water catch basins leading to the retention basin and a separator in the discharge line to the basin itself.

III. Limitations and Conditions

The effluent limitations and all other requirements described herein may be found in the draft permit.

Quantitative descriptions of the discharge in terms of significant effluent parameters based on the permit application and in terms of recent effluent monitoring data may be found in Table 1.

IV. Permit Basis and Explanation of Effluent Limitation Derivation

Water Quality-Based Requirements

Under Section 301(b)(1)(C) of the CWA and EPA regulations NPDES permits must contain effluent limits more stringent than technology-based limits where more stringent limits are necessary to maintain or achieve state or federal water quality standards or other applicable requirements of State law.

Water quality standards consist of three parts: (1) beneficial designated uses for a water-body or a segment of a water-body; (2) numeric and/or narrative water quality criteria sufficient to protect the assigned designated use(s); and (3) antidegradation requirements to ensure that once a use is attained it will not be degraded. The Massachusetts Surface Water Quality Standards, found at 314 CMR 4.00, include these elements. The state will limit or prohibit discharges of pollutants to surface waters to assure that surface water quality standards of the receiving waters are protected and maintained or attained. These standards also include requirements for the regulation and control of toxic constituents and require that EPA criteria, established pursuant to Section 304(a) of the CWA, shall be used unless a site specific criteria is established.

The permit must limit any pollutant or pollutant parameter (conventional, non-conventional, toxic, and whole effluent toxicity) that is or may be discharged at a level that causes or has the "reasonable potential" to cause or contribute to an excursion above any water quality standard. An excursion occurs if, for example, the projected or actual in-stream concentration exceeds an applicable water quality criterion. In determining "reasonable potential", EPA considers: (1) existing controls on point and non-point sources of pollution; (2) pollutant concentration and variability in the effluent and receiving water as determined from the permit's reissuance application, monthly discharge monitoring reports (DMRs), and State and Federal Water Quality Reports; (3) sensitivity of the indicator species used in toxicity testing; (4) known water quality impacts of processes on waste waters; and (5) where appropriate, dilution of the effluent in the receiving water.

Antibacksliding

A permit may not be renewed, reissued or modified with less stringent limitations or conditions than those contained in the previous permit unless in compliance with the anti-backsliding requirements of the CWA [see Sections 402(o) and 303(d)(4) of the CWA and 40 CFR

§122.44(l)(1 and 2)]. EPA's antibacksliding provisions prohibit the relaxation of permit limits, standards, and conditions except under certain circumstances. Effluent limits based on BPJ, water quality, and state certification requirements must also meet the antibacksliding provisions found at Section 402(o) and 303(d)(4) of the CWA.

Antidegradation

Federal regulations found at 40 CFR Section 131.12 require states to develop and adopt a statewide antidegradation policy which maintains and protects existing instream water uses and the level of water quality necessary to protect the existing uses, and maintains the quality of waters which exceed levels necessary to support propagation of fish, shellfish, and wildlife and to support recreation in and on the water. The Massachusetts Antidegradation Policy is found at Title 314 CMR 4.04. This draft permit is being reissued with allowable discharge limits as stringent or more stringent than the current permit. Monitoring for total zinc for Outfall 001 and for temperature for Outfall 002 have been discontinued as previous sampling has shown that there is no reasonable potential for these parameters to violate water quality standards.

The Reedy Meadow Brook at the point of discharge is classified as a Class B waterbody by the Massachusetts Department of Environmental Protection (MA DEP) and as a warm water fishery. Reedy Meadow Brook is located in the Merrimack River basin and is a tributary to Mill Pond. Class B waters shall be of such quality that they are suitable for the designated uses of protection and propagation of fish, other aquatic life and wildlife; and for primary and secondary contact recreation. Reedy Meadow Brook is on the Massachusetts DEP's 2002 303(d) list of impaired waters for pH, organic enrichment/low dissolved oxygen, suspended solids, pathogens and nutrients. Also in this 303(d) report, the State has identified Mill Brook, to which Reedy Meadow Brook is a tributary, as a hypereutrophic waterbody.

Technology-Based Requirements

The Clean Water Act (CWA) requires that the effluent of point source discharges satisfy minimum treatment technology and receiving stream water quality requirements. EPA established minimum technology requirements for the processing of apple juice in the form of effluent limitations guidelines (ELG) promulgated under Subpart A of 40 CFR 407 - Canned and Preserved Fruits and Vegetables Processing Point Source Subcategory. The guidelines specify the maximum mass (lbs per day) of biochemical oxygen demand (BOD) and total suspended solids (TSS) which may be discharged per thousand pounds of finished product. However, as of March 2005, this facility only uses apple juice concentrate in its apple juice products and is therefore not subject to these ELGs.

Conventional Pollutants

The BOD and TSS limits are based on a waste load allocation (WLA) conducted by the MA DEP in 1990. This WLA was attached to a letter from Peter Dore of the MADEP to Paul Hogan of MADEP on September 21, 1990. In a letter from Brian Donahoe of MADEP to William Lindsey of Veryfine on October 25, 1990, the MADEP recommended year round BOD and TSS limits of 10 mg/l. Accordingly, the 1993 permit was issued with these limits, as monthly

averages and these limits were also carried over in the 2000 permit. Daily maximum limits of 20 mg/l for each parameter were also established. EPA and MADEP still believe that these limits are appropriate due to the waterbody impairments noted earlier and the minimal dilution that is available to the effluent. Based upon a review of the monitoring over the last two (2) years, from October 2002 to October 2004, Veryfine has demonstrated compliance with its permit limits and has shown that it can operate this type of plant effectively to control specific pollutants, such as nutrients, which can have an impact on low flow streams in very low concentrations. There has only been one violation of the daily maximum TSS limit during this period. Since Reedy Meadow Brook is a relatively low flowing stream which allows a dilution factor of only 1.1 to the process wastewater, the limits of the existing permit were based on water quality considerations.

The BOD values between October 2002 and October 2004 ranged from 0.46 to 3.78 mg/l and were within the permitted limits. The TSS values for the same period ranged from 0.32 to 21.7 mg/l, with just that one value being in violation of the permitted daily maximum limit of 20 mg/l. These limits will be maintained in the new permit.

The daily maximum oil and grease limit of 15 mg/l has not been exceeded in the last two years, in most instances not being detected and a high reading of 6.6 mg/l. Therefore, since oil and grease is still occasionally detected, the 15 mg/l limit will remain with a monthly monitoring frequency to assure that levels of this parameter are controlled in the effluent.

Since the receiving water has been shown to be impaired for low dissolved oxygen, a minimum level of effluent DO of 7.0 mg/l was previously established. The previous 2 years of monitoring show the DO level ranging from 7.5 - 10.2 mg/l, as the permittee employs a post-aeration step in the treatment process to meet the permit limit. In order to assure that DO levels in the river remain at the level of 7.0 mg/l or greater to reflect the Massachusetts WQS, this limit has been maintained in the permit.

During the past two years, the pH range has fluctuated from 6.6 - 8.1 standard units, resulting in no violations of the permitted range of 6.5 - 9.0. The pH range of 6.5 - 8.3 s.u. is required for Class B waters by the Mass DEP for State Certification, but 9.0 as an upper limit was previously granted in consideration of the permittee's treatment efforts and the expectation that the instream standard of 8.3 s.u. would routinely be met. Upon consideration of this limit, we have determined that an upper pH limit of 8.3 s.u. is appropriate since there is very little dilution available to this discharge. We do not believe that this minimal dilution is sufficient to reduce instream pH levels below 8.3 s.u. if the facility were discharging up to 9.0 s.u.

Monitoring for E. coli and fecal streptococci was required in the expired permit due to the nature of fruit harvesting areas and the potential for animal fecal matter to contaminate portions of the crop.

Although the production of fruit juices is now currently about 30% by volume of total production and that raw apples are no longer processed at this facility, apple concentrate and fresh cranberries

are still used. These bacteria are often not detected and when they are, they are routinely at levels that are generally below those dictated by State water quality standards for fecal coliform.

often in the single digits. There was one reading of fecal streptococci of 130 colonies per 100 ml. The facility's ultraviolet (UV) disinfection system effectively treats for these bacteria parameters. These monitoring requirements will remain at the frequency of twice per month for the period of April 1 to October 31, in order to assure that any bacteria that is present in the effluent is effectively treated by the UV system. The previous permit reflected this period ending on October 15, but the MADEP now requires the seasonal date of October 31 as a State certification requirement.

Phosphorus

The Massachusetts Surface WQS (314 CMR 4.00) do not contain numerical criteria for total phosphorus. The criteria for nutrients is found at 314 CMR 4.05(5)(c), which states that nutrients "shall not exceed the site specific limits necessary to control accelerated or cultural eutrophication". The WQS also require that "any existing point source discharge containing nutrients in concentrations which encourage eutrophication or growth of weeds or algae shall be provided with the highest and best practicable treatment to remove such nutrients (314 CMR 4.04). MADEP has established that a monthly average total phosphorus limit of 0.2 mg/l represents highest and best practical treatment (HBPT) for POTWs. Reedy Meadow Brook is impaired due to nutrients and organic enrichment and as detailed below, more stringent, water quality based limits on phosphorus have been established.

These current effluent phosphorus limits of 0.1 mg/l as a monthly average and 0.2 mg/l as a daily maximum were established in the 1987 permit and were based on water quality considerations. In a letter to Mike Marsh of EPA of May 19, 1986, Thomas McMahon of the MADEP recommended these specific limits. These limits were also used in the 2000 permit.

EPA has released "Ecoregional Nutrient Criteria", which were established as part of an effort to reduce problems associated with excess nutrients in water bodies in specific areas of the country. The published criteria represent conditions in waters in that ecoregion minimally impacted by human activities, and thus representative of water without cultural eutrophication. Littleton, MA is within Ecoregion XIV, Eastern Coastal Plains. The total phosphorus criteria for this ecoregion, found in Ambient Water Quality Criteria Recommendations, Information Supporting the Development of State and Tribal Nutrient Criteria, Rivers and Streams in Ecoregion XIV, published in December, 2000 is 24 ug/l (0.024 mg/l).

EPA has produced several other guidance documents which contain recommended total phosphorus criteria for receiving waters. The EPA Quality Criteria of Water, 1986 (Gold Book) recommends in-stream phosphorus concentrations of 0.05 mg/l in any stream entering a lake or reservoir, 0.1 mg/l for any stream not discharging directly to lakes or impounds, and 0.025 mg/l within the lake or reservoir.

Limits based on the State's HBPT limit and EPA's ecoregion criteria are not being established at this time. Since Reedy Meadow Brook travels a short distance before it empties into Mill Brook, a hypereutrophic reservoir, we believe that this is appropriate for this limit to be based on the instream target guidance level of 0.05 mg/l, which applies to any stream entering a lake or

reservoir. The previous monthly average limit for phosphorus was based on the instream target of 0.1 mg/l. The revised monthly average limit is 0.23 lbs/day and is based on the 0.05 mg/l target. The daily maximum limit of 1.25 lbs/day, which is based on the concentration level of 0.2 mg/l will remain in this permit. The permittee has had no violations of effluent phosphorus in the last 2 years and a range of values between 0.04 and 0.45 lbs/day. These calculations are shown in **Attachment A**.

Ammonia Nitrogen

Ammonia nitrogen levels have been recorded at levels ranging from 0.025 to 0.75 mg/l during the past two years. Although these are fairly low levels, the minimal dilution leaves Reedy Meadow Brook susceptible to nutrient enrichment from even low levels of additional nutrients. This brook is already impaired for nutrients. Another potential source of ammonia in the discharge is from the anticipated cleaning procedures for the RO system. The monitoring will remain in the reissued permit at the frequency of once per month.

Temperature

Temperature values have ranged between 70 and 83 °F, the latter being the limit based on the State water quality standards for warm water Class B fisheries. This weekly monitoring and limit will remain in the permit.

Metals

The 2000 permit established quarterly monitoring requirements for copper and zinc, which were being detected on a regular basis. During the last 2 years, these metals, which are believed to be present in the municipal water used at the plant have routinely been detected, but at low levels. Total copper has ranged from not detected to 13 ug/l and total zinc has ranged from 4 - 10 ug/l. Based on a receiving water hardness of 89 mg/l, the instream WQS for total copper would be a daily maximum of 14 ug/l and a daily maximum of 120 ug/l for zinc. See **Attachment B** for these calculations. Since the copper levels are approaching those that could violate instream WQS, this monitoring requirement has been increased to a monthly frequency. However, since there does not appear to be a reasonable potential for effluent zinc to violate instream WQS, this requirement has been eliminated from this permit. The permittee may continue to report the total copper results from the analytical portion of the quarterly whole effluent toxicity (WET) test described below.

Total Residual Chlorine

During routine cleaning operations in the plant, personnel use cleaning chemicals containing sodium hypochlorite among other constituents and these have the potential to result in residual chlorine in the effluent. In addition, chlorine may be added at a few points in the RO system and the amines that are used for the cleaning of the RO system may also contain chlorine compounds. There may also be some chlorine in the Town of Littleton's municipal water supply that will be used for the RO system. Chlorine and chlorine compounds can be very toxic to

aquatic life. Therefore, there has been a once per week monitoring requirement established for TRC. For those instances when the RO system is cleaned, the TRC sampling shall be conducted within one hour of such cleaning.

Whole Effluent Toxicity

Whole effluent toxicity testing is conducted to assess whether certain effluents, often containing potentially toxic pollutants, are discharged in a combination which produces a toxic amount of pollutants in a receiving water. Therefore, toxicity testing is being used in conjunction with pollutant specific control procedures to control the discharge of toxic pollutants.

There are two specific sources of legal authority which explain how regulatory authorities have the legal basis for establishing toxicity testing requirements and toxicity-based permit limits in NPDES permits. Sections 402(a)(2) and 308(a) of the Clean Water Act provide EPA and States with the authority to require toxicity testing data. Section 308 specifically describes biological monitoring methods as techniques which may be used to carry out objectives of the Act. Under certain State narrative water quality standards, and Sections 301, 303 and 402 of the Clean Water Act, EPA and the States may establish toxicity-based limits to implement the narrative "no toxics in toxic amounts".

40 CFR Part 122.44(d)(ii) states, " When determining whether a discharge causes, has the reasonable potential to cause, or contributes to an in stream excursion above a narrative or numeric criteria within a State water quality standard, the permitting authority shall use procedures which account for existing controls on point and nonpoint sources of pollution ... (including) the sensitivity of the species to toxicity testing ..." The EPA and DEP believe that the complexity of this effluent is such that toxicity testing and limitations are required to evaluate and address any water quality impacts.

Although the last 2 years of WET testing have been in compliance with the permit limits, quarterly WET testing has been maintained due to the addition of the RO system to the facility. As previously discussed, the RO system will increase the total dissolved solids (TDS) that are added to the final effluent. There will also be flows from daily backwashing of the RO system as well as periodic system cleaning which the facility anticipates will occur up to four (4) times per year. **At least two out of every four WET tests per calendar year shall be conducted during a period of RO system cleaning.**

The frequency and type of WET testing is determined by EPA Region 1 policy and depends on the instream dilution available to the effluent. The MA DEP conducted a water quality modeling effort in 1987 which estimated the 7Q10 flow in this portion of Reedy Meadow Brook to be 0.1 cubic feet per second (cfs). EPA Region 1 routinely uses the 7Q10 flow (7 day low flow over a 10 year period) as the critical low flow to calculate water quality based and WET limits. The permit maintains an LC50 limit of 100% in order to ensure that there are no effects to organisms immediately downstream of the discharge where complete mixing may not occur. The WET testing will use the fathead minnow, Pimephales promelas in accordance with EPA

Region I protocol. See Permit Attachment A in the draft permit for a description of toxicity testing requirements.

The permit also maintains a C-NOEC limit, which has been retained at a limit of equal to or greater than 91%. The C-NOEC is the lowest concentration at which chronic reproductive or growth effects are indicated. The figure of 91% was derived from the inverse of the low stream flow dilution factor of 1.1 as shown in **Attachment A** of the fact sheet.

Outfall 002 - Storm Water

Outfall 002 discharges storm water from building roofs and parking lot drains. These flows are directed to a retention basin, prior to being combined with Outfall 001 flows for eventual discharge to Reedy Meadow Brook. There are oil/water separators for each storm water catch basins leading to the retention basin and a separator in the discharge line to the basin itself. At the outlet of the retention basin, there is an earthen berm and a filter fabric to provide some filtration prior to discharge. The flow rate out of the basin can be controlled. Thus, the basin can retain storm water during rainstorms and then gradually meter it out after the storm has passed if necessary. The storm water discharge flow is measured by meter after passing through this filtration fabric in a vault labeled “S/N 002 monitoring point” and prior to being combined with the Outfall 001 discharge. Monitoring for this outfall has been conducted for temperature, pH, TSS, oil & grease, total phosphorus and flow. During the past two (2) years, the following ranges of effluent values have been recorded at Outfall 002:

Temperature: 36 - 67 °F	Oil & grease: Not detected - 5.4 mg/l
pH: 5.5 - 6.5 standard units	Phosphorus, Total: 0.10 - 0.64 mg/l
TSS: Not detected - 49 mg/l	Flow: 0.005 - 0.512 MGD

The temperature results are well within the maximum temperature allowed by the State WQS of 83 °F for warm water fisheries, such as Reedy Meadow Brook. We would not expect temperatures in the storm water basin to deviate much from ambient conditions and since there does not appear a reasonable potential to violate the WQS, this requirement has been eliminated. There is already a temperature limit established for Outfall 001.

The TSS monitoring has shown varying results, from not detected to 49 mg/l. This monitoring can serve as an indicator of how well catch basins are being maintained and other filtration through the basin system is operating. Since Outfall 002 joins up with Outfall 001 prior to eventual discharge, we believe it is important to assure that TSS levels in the Outfall 002 discharge are controlled, as they are quite variable. Therefore, we have established a maximum daily TSS limit of 100 mg/l with a monthly monitoring requirement. It is acknowledged in the multi-sector general permit for storm water, issued on October 30, 2000, that 100 mg/l for TSS is a benchmark which should not be exceeded for a storm water discharge if a facility has a properly implemented storm water pollution prevention plan (SWPPP). As explained below, this permit has established a SWPPP requirement. If Veryfine reports TSS results approaching or exceeding 100 mg/l, it should evaluate what is causing such levels, review the SWPPP and revise it as necessary to minimize solids runoff.

The pH range of 5.5 - 6.5 is typical of precipitation values. This quarterly monitoring requirement will remain, with the permittee required to report the range of at least three (3) grab samples taken every quarter. Monitoring the pH of the storm water may not provide an indication of the effectiveness of the SWPPP because of the influences of factors other than the facility's industrial activities on the pH of the discharge (e.g. acid rain). However, the results of pH monitoring can be helpful in characterizing potential contaminants in the storm water discharges.

Oil & grease has generally not been detected during the last two years of monitoring, with the exception of 5.0 and 5.4 mg/l results. We believe that this requirement must be maintained to assure that the catch basins and oil/water separators are being properly operated and maintained. The State WQS limit O&G discharges to less than 15 mg/l. Since there are some outfall samples with detectable levels of this parameter, EPA has maintained this limit and quarterly sampling requirement.

Phosphorus results for the last two years have shown levels ranging from 0.10 to 0.65 mg/l. Since Outfall 001 has phosphorus limits and the receiving water is impaired for nutrients as discussed earlier and is in non-compliance with State WQS, this monitor only requirement will be maintained and increased to a monthly monitoring requirement. The SWPPP discussed below shall specifically include elements that will address phosphorus levels in this discharge. The permittee will investigate the potential sources of phosphorus to this detention basin, such as facility grounds fertilization practices, as well as specific controls to address effluent phosphorus and implement BMPs to reduce phosphorus levels that are discharged to Outfall 002 and eventually to Reedy Meadow Brook.

Flow out of this detention basin has varied widely as expected due to the nature of precipitation events. The permit requires flow to be measured monthly, consistent with the increased frequency for phosphorus and TSS. EPA and DEP believe that there is a potential for violation of water quality standards and a worsening of the current impairments to Reedy Meadow Brook as a result of this storm water discharge. Therefore, EPA has established the requirement to develop and implement a SWPPP in this permit.

Storm Water Pollution Prevention Plan

Pursuant to Section 304(e) of the CWA and 40 CFR §125.103(b), best management practices (BMP) may be expressly incorporated into a permit on a case-by-case basis where necessary to carry out Section 402(a)(1) of the CWA. The Veryfine facility stores and handles numerous chemicals on its property which could result in significant amounts of these pollutants reaching Reedy Meadow Brook. These operations include one or more of the following items from which there is or could be site runoff: materials storage, materials processing and handling, blending and loading/unloading of product. To control these activities/operations, which could contribute pollutants to waters of the United States via storm water discharges at this facility, the draft permit requires this facility to develop a Storm Water Pollution Prevention Plan (SWPPP) containing BMPs appropriate for this specific facility. The BMPs should include processes,

procedures, schedules of activities, prohibitions on practices, and other management practices that prevent or reduce the discharge of pollutants in storm water runoff. In addition, the Draft Permit requires the permittee to provide annual certification to EPA and the MADEP, documenting that the previous year's inspections and maintenance activities were conducted, results recorded, records maintained, and that the facility is in compliance with its SWPPP. A signed copy of the certification will be sent each year to EPA and MADEP as well as appended to the SWPPP within thirty (30) days of the annual anniversary of the effective date of the Draft Permit. This certification shall be signed in accordance with the requirements identified in 40 CFR §122.22. A copy of the most recent SWPPP shall be kept at the facility and be available for inspection by EPA and MADEP.

The SWPPP requirements in the draft permit are intended to facilitate a process whereby the permittee thoroughly evaluates potential pollution sources at the facility and selects and implements appropriate measures to prevent or control the discharge of pollutants in storm water runoff.

The process involves the following four steps: (1) formation of a team of qualified facility personnel who will be responsible for preparing the SWPPP and assisting the terminal manager in its implementation; (2) assessment of potential storm water pollution sources; (3) selection and implementation of appropriate management practices and controls; and (4) periodic evaluation of the effectiveness of the plan to prevent storm water contamination and comply with the terms and conditions of the draft permit.

To minimize preparation time of the SWPPP, the permittee may, for example, reflect requirements for Spill Prevention Control and Countermeasure (SPCC) plans [under Section 311 of the CWA and 40 CFR Part 112], Corporate Management Practices, etc.; and may incorporate any part of such plans into the SWPPP by reference. Provided these references address specific pollution prevention requirements and the goals of the SWPPP, they can be attached to the SWPPP for review and inspection by EPA and MADEP personnel. Although relevant portions of other environmental plans, as appropriate, can be built into the SWPPP, ultimately however, it is important to note that the SWPPP should be a comprehensive, stand-alone document.

The draft permit requires the permittee to develop and implement the SWPPP no later than 180 days after the permit's effective date. The SWPPP, when implemented, becomes a supporting element to any numerical effluent limitation by minimizing the discharge of pollutants through the proper operation of the facility. Consequently, the SWPPP is as equally enforceable as the numerical limits on the storm water discharge. See **Permit Attachment B** for specific SWPPP requirements.

The remaining conditions of the permit are based on the NPDES regulations, 40 CFR Parts 122 through 125, and consist primarily of management requirements common to all permits.

V. State Certification Requirements

EPA may not issue a permit unless the State Water Pollution Control Agency with jurisdiction over the receiving waters certifies that the effluent limitations contained in the permit are

stringent enough to assure that the discharge will not cause the receiving water to violate State Water Quality Standards. The staff of the Massachusetts Department of Environmental Protection has reviewed the draft permit and advised EPA that the limitations are adequate to protect water quality. EPA has requested permit certification by the State pursuant to 40 CFR 124.53 and expects that the draft permit will be certified.

VI. Public Comment Period, Public Hearing, and Procedures for Final Decision

All persons, including applicants, who believe any condition of the draft permit is inappropriate must raise all issues and submit all available arguments and all supporting material for their arguments in full by the close of the public comment period, to the U.S. EPA, Massachusetts Office of Ecosystem Protection (CIP), 1 Congress Street, Suite 1100, Boston, Massachusetts 02114-2023. Any person, prior to such date, may submit a request in writing for a public hearing to consider the draft permit to EPA and the State Agency. Such requests shall state the nature of the issues proposed to be raised in the hearing. A public hearing may be held after at least thirty days public notice whenever the Regional Administrator finds that response to this notice indicates significant public interest. In reaching a final decision on the draft permit the Regional Administrator will respond to all significant comments and make these responses available to the public at EPA's Boston office.

Following the close of the comment period, and after a public hearing, if such hearing is held, the Regional Administrator will issue a final permit decision and forward a copy of the final decision to the applicant and each person who has submitted written comments or requested notice. Within 30 days following the notice of the final permit decision, any interested person may submit a request for a formal hearing to reconsider or contest the final decision. Requests for formal hearings must satisfy the requirements of 40 CFR 124.74, 48 Fed. Reg. 14279-14280 (April 1, 1983).

VII. EPA & MA DEP Contacts

Additional information concerning the draft permit may be obtained between the hours of 9:00 a.m. and 5:00 p.m., Monday through Friday, excluding holidays, from the EPA and DEP contacts below:

George Papadopoulos, Massachusetts Office of Ecosystem Protection
One Congress Street Suite 1100 - Mailcode CIP
Boston, MA 02114-2023
Telephone: (617) 918-1579 FAX: (617) 918-1505

Paul Hogan, Massachusetts Department of Environmental Protection
Division of Watershed Management, Surface Water Discharge Permit Program

627 Main Street, 2nd Floor Worcester, Massachusetts 01608
Telephone: (508) 767-2796 FAX: (508) 791-4131

April 28, 2005
Date

Linda M. Murphy, Director
Office of Ecosystem Protection
U.S. Environmental Protection Agency

TABLE 1

AVERAGE EFFLUENT CHARACTERISTICS ¹

<u>Outfall 001</u>		<u>Outfall 002</u>	
<u>Parameter</u>	<u>Range of Result</u>	<u>Parameter</u>	<u>Range of Results</u>
Flow, MGD	0.21 - 0.43	Flow, MGD	0.005 - 0.512
BOD ₅ , mg/l	0.46 - 3.78	Temp, deg. F	36 - 67
Temperature, °F	65 - 81	pH, S.U.	5.5 - 6.5
pH, S.U.	6.6 - 8.1	TSS, mg/l	1 - 49
TSS, mg/l	0.32 - 21.7	Oil & grease, mg/l	ND - 5.4
Oil & grease, mg/l	ND ² - 6.6	Phosphorus, mg/l	0.10 - 0.64
Nitrogen, as NH ₃	0.025 - 0.75		
D.O., mg/l	7.5 - 10.2		
Phosphorus, lbs/day	0.04 - 0.45		
E. Coli, #/100 ml	0 - 3		
Fecal strep. #/100 ml	0 - 130		
Copper, Total, ug/l	0 - 13		
Zinc, Total, ug/l	4 - 10		

LC₅₀, pimephales promelas All 100%

NOEL, pimephales promelas All 100%

1. Data is from the Discharge Monitoring Reports for the period October 2002 to October 2004.
2. ND = not detected.

ATTACHMENT A

Mass based phosphorus limits:

$$\begin{array}{llll} \text{Monthly average:} & (0.55 \text{ MGD}) (0.05 \text{ mg/l}) (8.35) & = & \mathbf{0.23 \text{ lbs/day}} \\ \text{Daily maximum:} & (0.75 \text{ MGD})(0.2 \text{ mg/l}) (8.35) & = & \mathbf{1.25 \text{ lbs/day}} \end{array}$$

C-NOEC Limit Calculation

Instream low flow: 0.1 cfs = 0.065 MGD; Maximum Daily Flow, Outfall 001: 0.75 MGD

Flow Dilution @ Maximum Daily Flow: =

$$\frac{0.065 \text{ MGD} + 0.75 \text{ MGD}}{0.75 \text{ MGD}} = \mathbf{1.1}$$

The C-NOEC limit is equal to the receiving water concentration, which is the inverse of the dilution factor:

$$1 / 1.1 = \mathbf{91 \%}$$

ATTACHMENT B

METALS CRITERIA CALCULATIONS

Parameters: Copper and Zinc

Water Quality Criteria: Hardness dependent; See equation below

$$e^{(X [\ln(h)] + Y)}$$

(Acute, specific coefficients for dissolved fraction of copper and zinc)

<u>Copper</u>		<u>Zinc</u>	
<u>Chronic</u>	<u>Acute</u>	<u>Chronic</u>	<u>Acute</u>
Where: X = 0.8545	0.9422	0.8473	0.8473
Y = - 1.702	- 1.70	0.884	0.884
h = Hardness = 89 mg/l as CaCO ₃ ¹			
ln = natural logarithm			
Thus; $e^{(.8545 [(\ln 89)] - 1.702)}$	$e^{(.9422 [(\ln 89)] - 1.70)}$	$e^{(0.8473 [(\ln 89)] + 0.884)}$	$e^{(0.8473 [(\ln 89)] + 0.884)}$
8.4 ug/l	12.5 ug/l	110 ug/l	110 ug/l

Design Flow Dilution @ Maximum Flow: 1.1

Daily Maximum Effluent Limitations:

<u>Copper</u>		<u>Zinc</u>	
<u>Chronic</u>	<u>Acute</u>	<u>Chronic</u>	<u>Acute</u>
1.1 (8.4 ug/l)/0.96	1.1 (12.5 ug/l)/0.96	1.1 (110 ug/l)/0.978	1.1 (110 ug/l)/0.986
9.6 ug/l	14 ug/l	120 ug/l	120 ug/l

The conversion factors of 0.96 and 0.978 are used to convert from the dissolved metal criteria limit to obtain the total metal limit.

1. This is the average hardness value of the effluent from the WET testing results over the last 2 years.